

REMARKS/ARGUMENTS

The Examiner is thanked for his review of the application.

Claims 1-20 remain in this application.

In an Office Action dated February 8, 2005, the Examiner rejected Claims 1, 8, and 20 under 35 U.S.C. 112, second paragraph, stating that they are “indefinite in that they fail to point out what is included or excluded by the claim language.”

Regarding Claims 1 and 20, the Examiner stated that “the term ‘inconsistencies’ is vague, indefinite and subject to interpretation. The Applicant does not define the type of ‘inconsistencies’ being detected i.e. mathematical, price, indexes, etc.”

Base claims 1 and 20 have now been amended to recite “product parameter inconsistencies.” Support for this amendment can be found in the specification on page 12, lines 21 - 22. In the specification, inconsistencies in such product parameters as price, cost, sales volume and others are detected. The specification defines inconsistencies as “unusual” or inconsistent product parameter data. (page 12, lines 15 – 16).

There are many examples in the specification of detection of inconsistencies in product parameter data. For example, on page 11, lines 19 – 21, duplicate records and records having no match in the client supplied data are detected as inconsistent. On page 12, lines 10 – 14, defective records such as those displaying negative sales volume or negative cost are detected. Also, records deemed “unusual” because they are inconsistent with cross-store distribution information are detected as inconsistent.

Other examples of inconsistencies in the specification include erroneous records (page 15, line 4) such as records from closed stores or where there is no product movement (page 15, lines 8-9). Discrepant or duplicate records indicate inconsistencies in the product parameter data (page 15, lines 14-15). Also, instances where there are identical values for store, date and type of

product parameters, but different values for units, prices or other product parameters are detected as inconsistent (page 17, lines 12-13). Finally, instances where there are missing records (page 18, line 16), inconsistencies in such product parameters as price, volume or causal variables (page 18, lines 17-18), and outliers such as outlying price data points (page 22, lines 1-2) are given as examples of inconsistencies.

Applicants respectfully submit, in view of the currently submitted amendments, claims 1 and 20 are now in allowable form. The amendments more distinctly define the type of inconsistencies which are detected. In light of the definition of inconsistent and the many examples of product parameter inconsistencies given in the specification, Applicants respectfully submit that claims 1 and 20 are allowable under 35 U.S.C. 112.

Regarding Claim 18, the Examiner stated that “the terms ‘product attributes, demand groups, attribute information, equivalizing factors’, begs the question, ‘What types of product attributes, demand groups, etc.’. Also, ‘Such as what equivalizing factors are being defined?’”

Base claim 18 has now been amended to recite “equivalizing factors to facilitate comparisons between product attributes.” Support for this amendment can be found in the specification on page 14, lines 13-15.

The term “product attribute” is defined in its common and customary usage. Product attributes are simply inherent characteristics of said products. Several examples of product attributes are given throughout the specification. For example, specific product attributes such as branding information, manufacturer, size, flavor or form are given on page 13, lines 8-9. “Attribute information” is defined in the same way. (See, e.g. page 13, lines 7-8).

The term “demand groups” is defined in the specification as “groups of highly substitutable products.” (page 13, line 6).

Applicants respectfully submit, in view of the currently submitted amendment, claim 18 is now in allowable form. The equivalizing factors allow comparisons between various product

attributes (See, e.g. page 14, lines 13-15). As such, the equalizing factor acts as a normalizing (or equalizing) factor to allow comparisons of heterogeneous, but related, products. For example, similar products offered in various sizes are equalized for size by using a median size as the equalizing factor (page 14, lines 8-10). In light of the definition of "demand groups" and the many examples of "product attributes" given in the specification, as well as the current amendment distinctly defining the types of equalizing factors employed by the current invention, Applicants respectfully submit that claim 18 is allowable under 35 U.S.C. 112.

The Examiner has also rejected Claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Dulaney et al. U.S. Patent 6,341,269 (Dulaney '269), and further in view of Maeda et al. U.S. Patent 5,377,095 (Maeda '095).

Regarding Claims 1-20, the Examiner has stated that "Dulaney '269 in conjunction with Maeda '095 discloses the claimed invention, except for the different types of units and variables that can be used to determine the optimum stocking quantities or price.

However these differences are only found in the nonfunctional descriptive material and are not functionally involved in the steps recited. The detecting, correcting and inputting steps would be performed the same regardless of the type of data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see *In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to detect, correct and input raw econometric data be it base price, relative price, base volume, effects of stock-piling, etc., because such data does not functionally relate to the steps in the method claimed and because the subjective interpretation of the data does not patentably distinguish the claimed invention.

It would have been an obvious to modify the teachings of Dulaney '269 and Maeda '095, to use the types of units and variables that the implementer decides to use. Since the applicant has not disclosed that types of units and variables selected solves any stated problem in a new or unexpected way or is for any particular purpose which is unobvious to one of ordinary skill and it appears that the claimed feature does not distinguish the invention over similar features in the

prior art since, the teachings of Dulaney '269 and Maeda '095 will perform the invention as claimed by the applicant with any means, method, or product to optimize merchandise shelf space and price.

Dulaney '269 teaches about optimizing sales by collecting and filtering the data as per selected criteria prior to use as per independent claims 1, 18, and 20. Maeda '095 further teaches about specific data analysis procedures for determining/predicting the sale of an item.

Dulaney '269 does disclose the concept of when importing data into a database, indicating/utilizing a method/criteria for adding records (how to deal with duplicates) Col. 9, lines 10-16. The concept of cleansing data is old and well known. Real-World Data is Dirty: Data Cleansing and the Merge/Purge Problem. Data Mining and Knowledge Discovery.” (emphasis added).

Base claims 1 and 20 have now been amended to recite “generating imputed econometric variables.” Support for this amendment can be found in the specification on page 54, line 8, and on page 59, line 27. Applicants respectfully submit that in view of the current amendment clearly pointing out the step of imputing econometric variables, claims 1-17 and claim 20 are allowable over Dulaney '269 in conjunction with Maeda '095. Examiner asserts that the cited art teaches the steps of “detecting, correcting and inputting.” (emphasis added). However, neither Dulaney '269 nor Maeda '095 teach nor suggest the impute or imputation steps as recited in the claims.

The specification has previously been amended to incorporate the commonly used mathematical definition of imputed as “inferred or arrived at from known or assumed data, or derived by reasoning” (page 2 of Preliminary Amendment to RCE filed December 16, 2004). As noted on page 10 of said Preliminary Amendment, imputation is used to obtain posterior inference when some data points are missing. A novel and advantageous aspect of the current invention is that even when various product parameters are missing or incomplete, they may be imputed according to the present invention. (See page 14, lines 1-2 of the specification as filed). For example, when information regarding promotional variables is missing or incomplete, other data such as sales volume is used to impute a refined promotional variable (page 45, lines 5-18 of the specification as filed).

Another example of advantageously using the novel imputation aspect of the instant invention to infer variables is given in the specification on page 24, lines 15 – 23, and page 25, lines 1 -2. Here, a base price variable is inferred from the cleansed data set for a specific time window. Said base price variable may advantageously be further refined by, for example, correcting for promotional pricing (See, page 26, lines 2 – 22). Promotional prices are inferred from the cleansed data set and used to impute a refined base price variable.

Neither Dulaney '269 nor Maeda '095 teach nor suggest the impute or imputation steps as recited in the claims of the instant invention. The imputation step solves the problem of generating econometric variables from missing or incomplete data sets. It is not possible to generate such variables by simply inputting data as taught by Dulaney '269 and Maeda '095. Dulaney '269, for example, takes point of sale data and imports the data into an optimization scheme. (Dulaney '269, col. 5, lines 6 – 30). The instant invention, on the other hand, takes point of sale information, which may have missing or incomplete data, and imputes useful variables which may then be used for optimization or other useful purposes. (See, specification, p. 23, lines 4 – 7). Imputation of econometric variables is neither taught nor suggested in the prior art. Hence, claims 1-17 and 20 are allowable over the cited art.

Base claim 18 has now been amended to recite “equivalizing factors to facilitate comparisons between product attributes.” As stated above, the equivalizing factors allow comparisons between various product attributes (See, e.g. specification, page 14, lines 13-15). As such, the equivalizing factor acts as a normalizing (or equivalizing) factor to allow comparisons of heterogeneous, but related, products such that useful econometric variables may be imputed. For example, similar products offered in various sizes are equivalized for size by using a median size as the equivalizing factor (page 14, lines 8-10). This novel aspect of the current invention solves the problem of designing a method that allows for the generation of predictive models useful for heterogeneous product groups. Furthermore, an equivalizing factor may be used to generate an equivalent price (p. 29, line 1), or equivalent units (page 30, lines 3 – 18, and page 31, lines 1 – 14). The instant invention makes use of all point of sale data, including missing data, to impute said equivalizing factors. The equivalizing factors enable useful normalization of heterogeneous demand groups to facilitate desired analysis.

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Neither Dulaney '269 nor Maeda '095 teach nor suggest the use of an equalizing factor to help impute econometric variables. Hence, the Applicants respectfully submit that claims 18 and 19 are allowable over the cited art.

In sum, base claims 1, 18 and 20 have been amended and are now allowable. Claims 2-17 and 19 which are dependent on Claims 1 and 18, respectively, are all allowable for at least the same reasons Claims 1 and 18 are allowable. Hence, Examiner's rejection of Claims 2-17 and 19, are rendered moot in view of the amendment to independent Claims 1 and 18.

Applicants believe that all claims are now allowable over the cited art and are also in allowable form. The commissioner is authorized to charge any fees that may be due to our Deposit Account No. 50-2766 (Order No. DEM1P002). Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number 925-570-8198.

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Respectfully submitted,



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